Rural Telecommunications
(1) Historical Aspects
– Missing Link -

Jun-ichi TAKADA

Department of International Development Engineering

Tokyo Institute of Technology

Reading Assignment

Report of the Independent Commission for Worldwide Telecommunications Development "The Missing Link," December 1984.

- http://www.itu.int/osg/spu/sfo/missinglink/index.html

- Read page 1-70 of the above document. Report about the following items by October 27 (to Abdur):
  1. What are the roles of telecommunications? After 25 years, what are obsolete roles?
  2. Itemize the issues about the telecommunications development.
  3. List the available technologies to solve the problems. After 25 years, what are the significant changes?

What is “Missing Link”?

- Report of the Independent Commission for Worldwide Telecommunications under ITU (International Telecommunication Union) in 1984.
  - ITU is the oldest organization in UN.

What is “Missing Link”?

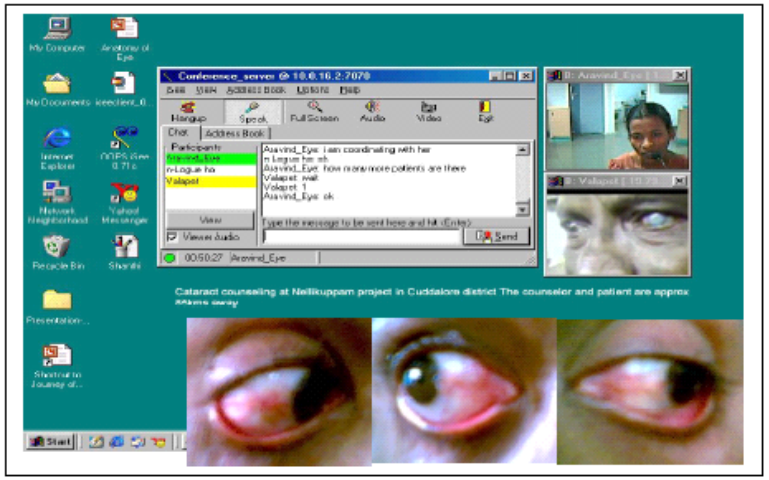
- Call for decisions at the highest political level.
  - Developing countries can set target, e.g. percentage of their GDP to invest in telecommunications
  - Extension of telecommunication services to rural and remote areas.
  - Sharing of experiences.

Role of Telecommunications (Question 1)

- Existence of an efficient telecommunications system confers direct and indirect benefits.
  - Emergencies and health services
  - Public administration, commerce and other economic activities
  - Reduction of need to travel, and better use of existing transport facilities

Emergencies and Health Services

- 5% of calls from rural and remote
  - India, Costa Rica, Egypt, Papua New Guinea
- Communicable disease
  - Cholera, dengue fever, …
- Natural disaster
  - Typhoon, earthquake, …
- Medical services
  - Delivery of drugs
  - Flying doctors

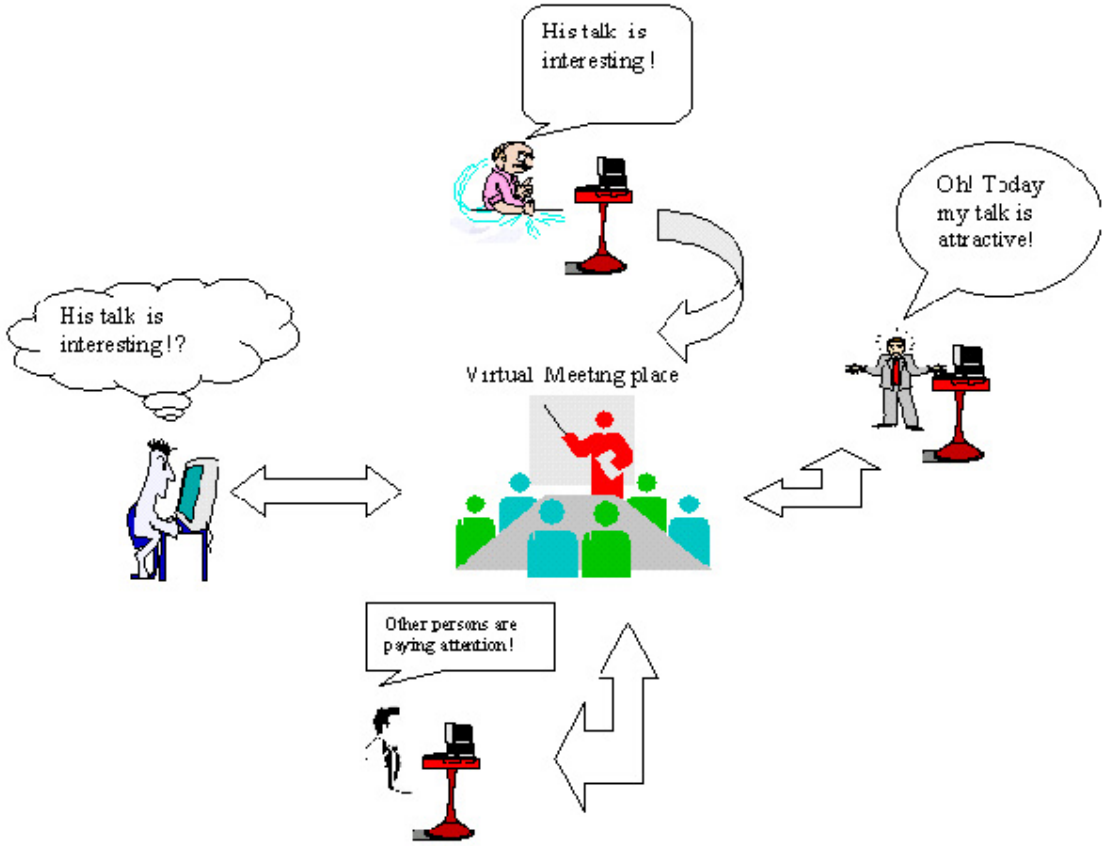


Public Administration, Commerce and Other Economic Activities

- Tenders saving cost over standing order
- Market price of products in the city
- Economic activities – examples in Kenya
  “Loss w/o telecom = 110 x cost of telecom”
  - Hotel and travel agency
  - Biscuit maker
  - Freight shipper
  - Vegetables and flowers exporter
- Attraction of commercial and business enterprises

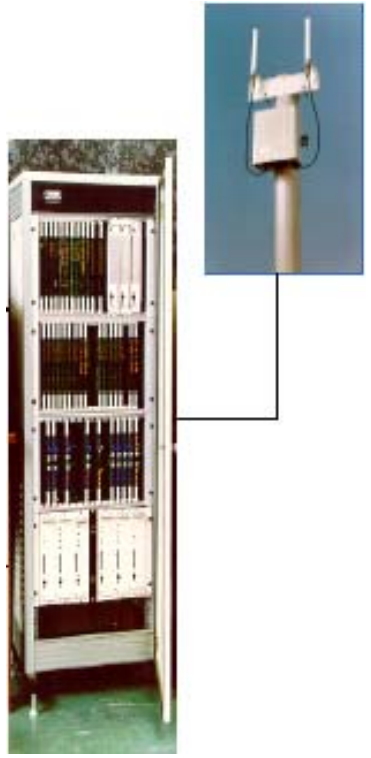
Reduction of Need to Travel

- Over the travel, long distance call can save
  - Money
  - Time



Telecommunications in Development

- Other factors and infrastructures
  - Good administrations
    (to be also achieved with telecom)
  - Transportation



Situation in 1984

- Major services
  - Telephone
  - Telex
  - Data service
- Personal computers
  - Still very rare and expensive
  - Mainly for hobbiest
- Size of services
  - 600 million telephones
  - US$250 billion revenues / year

Opinions from Students

- Provision of Public Services
  - For decentralization, telecommunication acts a key role.
- Police information dissemination
  - Messaging the information about crime and warning.
- Sharing the knowledge in the world
  - Online education such as OCW.

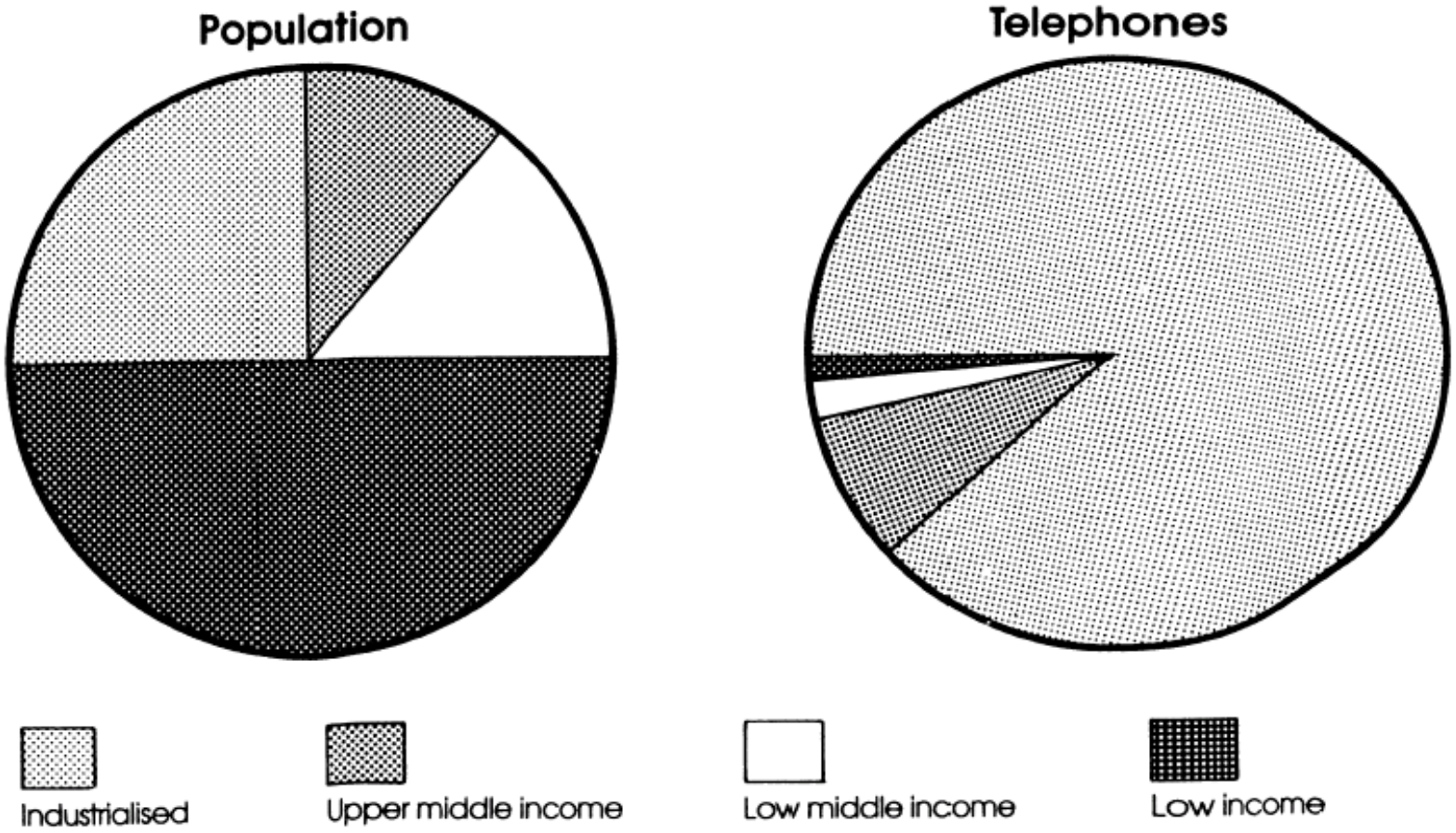
What have changed during 25 years?

- Emergencies and health services
  - Police information
  - Early warning system earthquake/tsunami
  - Medical consultation: video, web
- Public administration, commerce and other economic activities
  - Outsourcing: calling center
  - Online transactions; e-commerce, e-trading
  - Online marketing; individual business/SOHO
- Reduction of need to travel, and better use of existing transport facilities
  - Distant learning
  - Teleconference; video conference; teleexsistence
  - Online interview

Issues about Telecommunications Development (Question 2)

- Disparity of telecommunication services
- Availability and quality of service
- Funding
- Equipment supply

Disparity in Extent of Telecommunication Services

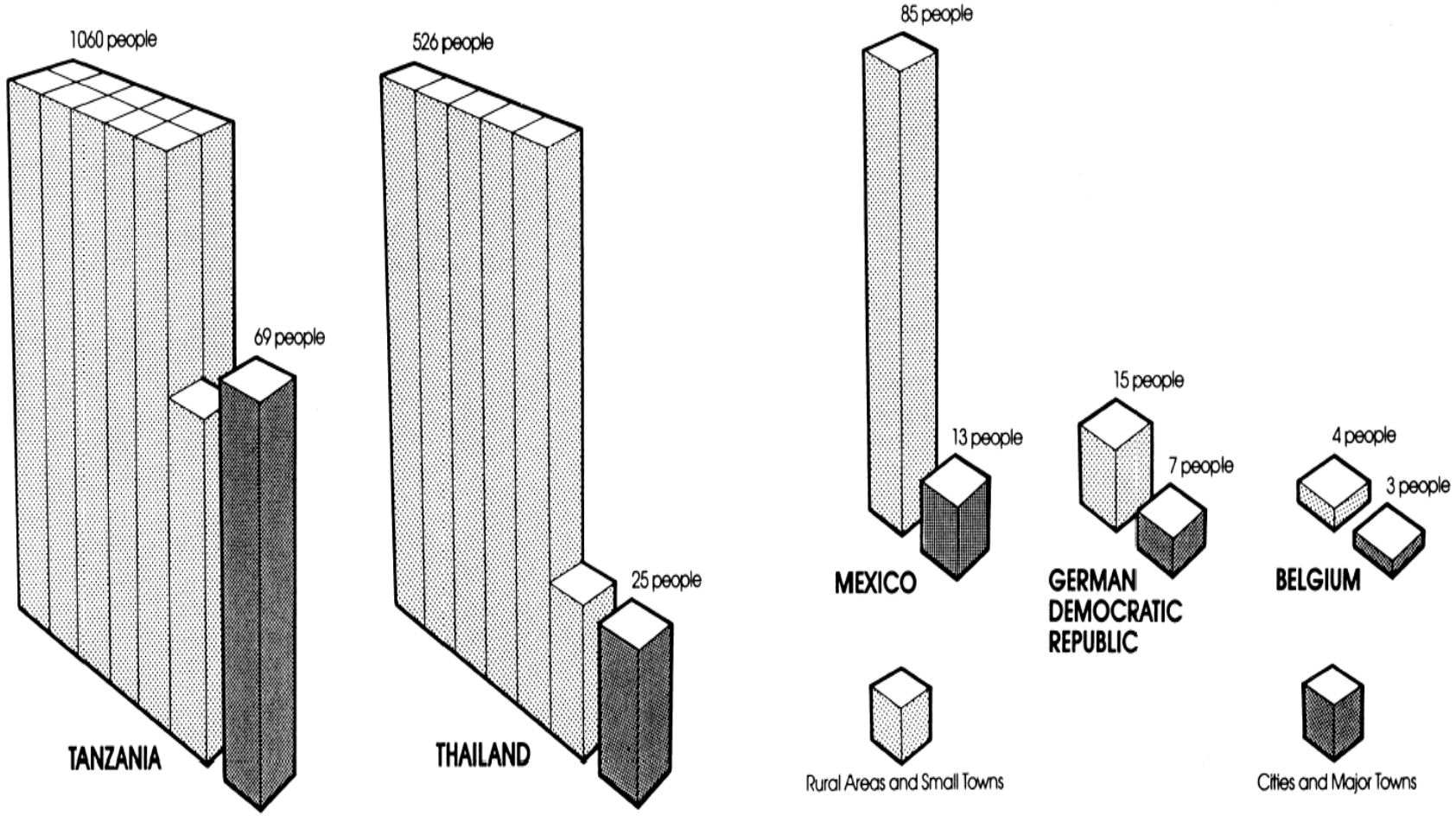


2/3 of world population had no telephone access.

Extent of Service in Developing Countries

- Telephone service far from universal
- Only in larger towns and business centers
- Great tracts of territory with no telecom

People per Telephone in 1982



Availability and Quality of Service

- Long waiting list – 3 years not uncommon
  - Shortage of equipments and cables
- Poor service – limited time, call drop
  - Shortage of equipments
  - Inadequate maintenance
  - Shortage of trained staffs

Funding

- Too small investment to meet demands
- No manufacturing industries
  - Import cost
- Low priority
  - Compared to agriculture, health, education, roads,…

Funding

- Strategy of world telecommunication firms
  - Export markets
  - Arrangement of funding
- Important considerations
  - Credits or loans = indebtedness
  - Equipments chosen related to financing, not suitability or other merits
  - Different types of equipments = difficulty of maintenance

Equipment Supply

- Products on the market
  - Designed for advanced countries
    - Temperate climates
    - High population density
    - Good maintenance of equipments and networks
  - Deployment into developing countries
    - High temperature
    - High humidity
    - No trained staffs

Equipment Supply

- Manufacturer driven
  - Stop making older system
  - Enforce developing countries to exchange systems
- Smaller and poorer countries
  - Limited quantities
    = high cost for transport and support

Problems of Remote Areas

- No form of telecommunication services outside the town
- Limited service time
  - Large distance
  - Difficulty of terrain
  - Sparseness of population

  } High cost

=> Less interest in business

International Cooperation

- International Telecommunication Union (ITU)
  - Technical cooperation
- United Nations Development Programme (UNDP)
  - US$ 21.6m in 1982
- International Bank for Reconstruction and Development (World Bank)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)

Global Communication Service

- Satellite operators
  - INTELSAT
  - INTERSPUTNIK – Soviet Union based
  - INMARSAT - Maritime

Opinions from Students

What have changed during 25 years?

- Disparity of telecommunication services
  - Gap still exists, but getting smaller.
  - Reduction of cost; semiconductors, Internet, mobile phone
  - Different development model of telecommunications: wireless connection needs less infrastructure investment
- Availability and quality of service
  - Improved
- Funding
- Equipment supply
  - Major global suppliers e.g. Huawei, Samsung, Nokia, Motorola, Sony Ericsson, LG, Siemens, focus more on the developping market: They now provide the products more suitable for the use in developing areas

Reading Assignment

- Tim Kelly, “Twenty Years of measuring the Missing Link,” October 2005.

  http://www.itu.int/osg/spu/sfo/missinglink/kelly-20-years.pdf

  When you read it, consider the answers to the following questions:

  1. What are the major changes in the service aspects?
  2. What are the major changes in the technology aspects?
  3. What are the major changes in the policy aspects?
  4. How do you measure digital divide?

Web Page

http://portal.uml.gsic.titech.ac.jp/moodle/course/view.php?id=3

- You can create your own account by yourself.